

# PATENT ABSTRACTS OF JAPAN

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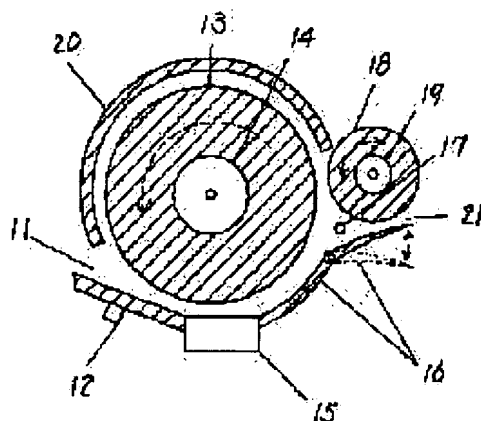
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## (54) IMAGE READER

### (57)Abstract:

**PURPOSE:** To prevent blank paper information from being read by erroneous insertion of the paper surface to a picture input device by providing an image reader which detects whether the input page of the document is a blank paper or not and reads the rear side of the input document in the case of a blank paper and outputs picture information on the rear side at the time of detecting information on the rear side.

**CONSTITUTION:** The paper surface on one side of a transmission document inserted to a document insertion hole 11 is read by an image scanner 15; and if it is judged that the whole of the paper surface is a blank paper, a subroller 18 is reversed to read the opposite side of this read paper surface. Thus, the blank paper surface is prevented from being unnecessarily read to output only paper surface information effective as picture information.



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## LEGAL STATUS

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the image reader formed in facsimile apparatus, the personal computer equipped with the facsimile function, etc.

[0002]

[Description of the Prior Art] In recent years, facsimile apparatus comes to spread widely and various kinds of image readers are proposed.

[0003] The conventional image reader is explained below. The pixel of the part on which the image was drawn about the image information currently drawn on manuscript space is changed and incorporated with the binary-ized image at a wind called white, and by facsimile communication, the pixel corresponding to the part on which black and an image are not drawn compressed the read binary-ized image data, and it has sent it out to the telephone line. However, in the conventional example, what is detected generally [ the table or flesh side of manuscript space / that each people judge ] and automatically was not performed.

[0004]

[Problem(s) to be Solved by the Invention] However, with the above-mentioned conventional configuration, input space did not need to perform the check of a table or a flesh side, for example, the direction of a front flesh side of space information to which an operator wants to send in image reading in facsimile transmission needed to be checked, and it had the trouble of sending out accidentally the blank paper information on the field of the opposite side of the information to which an operator wants to transmit to a communications partner. This invention solves the above-mentioned conventional trouble, sending out of blank paper data is prevented, and it aims at offering the image reader which sent out only the data of space effective in transmission.

[0005]

[Means for Solving the Problem] It has a configuration which reads again the image of the field where the image reader of this invention is opposite to the field which made inside-out paper inserted in the picture input device when it judged whether the image information of the space read by the picture input device was a blank paper with the central processing unit and was a blank paper, and was read previously in order to attain the above-mentioned purpose.

[0006]

[Function] This invention can send out only the page in which image information was written by the above-mentioned configuration as blank paper space was not sent out to a transmitting partner's facsimile apparatus.

[0007]

[Example] Hereafter, it explains, referring to a drawing about one example of this invention.

[0008] To be shown in drawing 1 , the image information of space to transmit is read by the picture input device 1, and the image data outputted from a picture input device 1 is controlling this whole system while it compresses and changes to the data stream in alignment with a telecommunications

standard and the inputted space information judges whether it is a blank paper with a central processing unit 2. The data compressed with the central processing unit 2 modulated the data held and stored with the store 3 in the communications department 4, and have taken the system configuration sent out to a communication circuit 5.

[0009] Below, the configuration is explained about the picture input device shown by drawing 2.

Insertion is made to read in the manuscript insertion opening 11 the manuscript paper in which the image information which is going to transmit was drawn by the picture input device 1.

[0010] Next, the existence of a manuscript is detected by the paper detection sensor 12. The Maine roller 13 moves the manuscript rotated and inserted in the surroundings of a revolving shaft 14 in the direction of a broken line of drawing using rotation. The inserted manuscript is read per one line with an image scanner 15. As for the inserted manuscript, the migration direction is divided by the bearer bar 17. Here, the subroller 18 is controlled so that the rotation to both directions can do the surroundings of a revolving shaft 19, as the dotted line of drawing shows. Moreover, the fixed guard 20 is formed in migration of manuscript paper, and the movable guard 16 for guarding manuscript paper is formed near the manuscript sending-out opening 21.

[0011] About the image reader constituted as mentioned above and its picture input device, the actuation is explained to a detail using drawing 3 - drawing 9.

[0012] A manuscript is inserted in the manuscript insertion opening 11, if it checks that there is a manuscript 22 by the paper detection sensor 12, the Maine roller 13 will rotate in the direction of a broken line shown in drawing 3, and \*\*\*\* of a manuscript will be started. If the tip of a manuscript 22 reaches on an image scanner 15, as shown in drawing 4, an image scanner 15 starts reading of image information of one line at a time, a central processing unit 2 will compress the image data read in the image scanner 5, and it will save it at a store 3, and will check altogether whether it is white about the read Rhine data. If the start edge of a manuscript 22 reaches the subroller 18, rotation of the subroller 18 sends out a draft in the manuscript sending-out opening 21 direction from a point. If the termination of a manuscript is detected by the paper detection sensor 12 as shown in drawing 5, an image scanner 15 will read a part for Rhine which exists between an image scanner 15 and the paper detection sensor 12, reading of the after image information is ended, and a manuscript 22 is sent to the manuscript sending-out opening 21 side. While the termination of a manuscript progresses to the manuscript sending-out opening 21 from an image scanner 15, a central processing unit 2 judges whether the space read with the image scanner 15 was a blank paper, and if it is not a blank paper, it sends out a form to the exterior as it is. If it judges that the read space is a blank paper, as shown in drawing 6, the movable guard 16 moves upwards so that a manuscript may be inserted, the subroller 18 will stop, when it is in the condition that the termination of a manuscript was pinched by the subroller 18 and the movable guard 16, and the subroller 18 will begin to rotate it to hard flow like drawing 7 after it. A manuscript advances between the Maine rollers 13 with the fixed guard 20 by rotation of the Maine roller 13 and the subroller 18. If the manuscript start edge from the manuscript sending-out opening 21 is detected by the paper detection sensor 12, the movable guard 16 will open below like drawing 8, and will enable sending out of a manuscript like drawing 9. If a manuscript 22 arrives at the location of an image scanner 15, an image scanner 15 will start reading and a central processing unit 2 will perform the same actuation as a front. If the manuscript for distance of the paper detection sensor 12 and an image scanner 15 will be read if the paper detection sensor 12 detects manuscript termination, and even manuscript termination is read, reading by the image scanner 15 will be stopped. The Maine roller 13 and the subroller 18 stop, after a manuscript is sent out.

[0013] Below, the example of control at the time of using this example for facsimile transmission is explained using the flow chart of drawing 10 (a), (b), and (c). At step 1, manuscript existence is detected and this corresponds to above mentioned drawing 3. If a manuscript is detected, the Maine roller and a subroller will begin to rotate, and step 2 moves the tip of the manuscript inserted from manuscript insertion opening on an image scanner. If it comes by step 3 on a manuscript image scanner, it is begun with an image scanner to read the image of a manuscript. Although the image data of a manuscript is read at step 4 until it detects manuscript termination by the paper detection sensor, this is equivalent to

drawing 4 . If step 5 is equivalent to drawing 5 and the termination of a manuscript is detected, it will read the image data, i.e., the image scanner in a manuscript termination detection time and the image data between paper detection sensors, to which it was left behind on the manuscript at step 5. After finishing reading a manuscript to termination, an image scanner judges at step 6 whether the manuscript which ended and read reading was blank paper data, and if it is not a blank paper, it is used as data effective in a communication link, and it sends it out to a communication line. Step 7 is the case where the detected result is a blank paper, when manuscript termination is between a subroller and a movable guard like drawing 6 , it makes a subroller suspend, and it presses down manuscript termination between subrollers so that a manuscript may not be sent out with a movable guard. Next, by SUTTEPPU 8, as old rotation, a subroller is rotated in the direction of inverse rotation, as shown in drawing 7 , and a manuscript is attracted. At step 9, a movable guard is moved below in preparation for sending out of the manuscript which detects the start edge of a manuscript and is read at step 10. The data which read the manuscript at the after [ this ] step 4 and step 5, and were read at step 6 judge whether it is a blank paper. Since the table of a manuscript and the flesh side are read in this time, a manuscript is sent out without doing anything, if it is a blank paper, and if it is not a blank paper, the image data of the field read now is sent out to a communication line.

[0014]

[Effect of the Invention] It judges whether the image information of the space read by the picture input device by this invention is a blank paper with a central processing unit, and paper inserted in the picture input device when it was a blank paper is made inside-out, and the outstanding image reader which prevents sending out of useless blank paper space in facsimile transmission etc., and enabled it to send out only space information effective in a communication link to it can be realized by using a means to read again the image of the field where the field read previously is opposite.

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[Translation done.]